

Project Name: *Write out the entire, specific name.*

Groundwater Content Enhancement in California Water Plan Update 2013.

Sponsor/Program Manager	Paul Massera
Project Manager	Abdul Khan

Project Objective Statement: *What must the project do? By When? Keep this statement to 25 words or less. Make it SMART (Specific, Measurable, Achievable, Relevant, and Time-based).*

Expand information about statewide and regional groundwater conditions in California Water Plan Update 2013 to better inform groundwater management actions and policies.

Triple Constraint Trade-off

Resources	S	Select a different flexibility letter for each constraint N= Not Flexible S= Somewhat Flexible M= Most Flexible
Schedule	N	
Scope	M	

Estimated Start Date:	7/1/2010	Estimated End Date:	9/30/2013
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Project Deliverables: *What is the project going to produce? Create a list of tangible products that will result from project.*

1. Compile, organize, and integrate California's groundwater data, information, and analysis from existing State, federal, regional, and local water resource planning activities.
2. Using existing information, provide summary narratives on the groundwater conditions, institutional frameworks, and management activities at the statewide and Regional Report level. Based on available data and information, furnish site specific examples of groundwater conditions and management activities at the planning area/groundwater basin level, including the identification of groundwater basins having quantity or quality problems.
3. Identify data gaps for the State's groundwater basins and provide recommendations for future data collection efforts, including funds required to implement existing unfunded data collection and reporting mandates.
4. Quantify, qualify, and report the spring-to-spring change in groundwater storage at the planning area or groundwater basin scale. Qualification of the change in storage information will be made on the basis of availability of data.
5. Case Studies: In groundwater basins having sufficient data and analysis, present Case Studies including groundwater budget from various regions of the state that demonstrate the benefits, as well as the challenges and opportunities, associated with the collection and application of groundwater data, and the integration of local and regional water management strategies. Case Studies are intended to highlight the successes and challenges of applying integrated water resource management strategies within various regions of the state.
6. Inventory and describe the potential for conjunctive management of groundwater and other supplies, including the examination of potential groundwater recharge options, and the potential for developing multi-benefit projects that could help generate source water for groundwater storage projects.
7. Inventory and describe potential for groundwater banking and integrated flood management. The inventory will be at the planning area/groundwater basin scale, and based on availability of existing studies and data.
8. Develop preliminary sustainability indicators for both groundwater quantity and quality.

Strategic Fit: *What is the Strategic Initiative Identifier for this project?*

- Supports Water Supply and Balance Team of the Water Plan Update in their work.
- Supports California's Groundwater (Bulletin 118).
- Supports resource management strategies such as conjunctive management and groundwater storage; groundwater and aquifer remediation; recharge areas protection; flood risk management; and pollution prevention at the regional level.
- Develops and supports recommendations of the Water Plan Update.
- Provides linkages to regional reports of the Water Plan Update.

Customer: *Who are you doing the project for?*

Primary Customers:

- State Agencies:
 - DWR.
 - State Water Resources Control Board (State Board).
 - California Public Utilities Commission (CPUC).
 - California Department of Public Health (CDPH).
 - California Governor's Office.
- Local agencies and regional water planning & management entities and groups.
- Delta Stewardship Council (DSC).
- California Legislature.
- California Native American Tribes.
- Groundwater experts working on groundwater issues in the state.
- Association of California Water Agencies (ACWA).
- Groundwater Resources Association of California (GRA).

Other Stakeholders:

- Water Plan Public Advisory Committee (PAC).
- State Water Analysis Network (SWAN).
- Water Plan State Agency Steering Committee.
- Federal Agencies.
 - U. S. Geological Survey (USGS).
 - U.S. Bureau of Reclamation (Reclamation).
 - U.S. Army Corps of Engineers (USACE).
- General public and individual groundwater users.

Customer Benefits: *What customer requirements does this project address? Relate these to: increase revenue, avoid costs, improve service, and/or comply with a mandate? Create a short list of customer benefits.*

- Provides access to consolidated groundwater information from various State, federal, regional, and local water resource planning initiatives in a single document.
- Furnishes the status of regional groundwater conditions, management activities, and problem areas to help identify data gaps to better inform future groundwater monitoring needs and activities.
- Provides useful illustrations of local and regional management of groundwater resources through Case Studies.
- Helps improve groundwater management by providing access to existing information and data regarding groundwater resources; annual change in groundwater storage; inventory and identification of the potential for conjunctive management, groundwater banking and integrated flood management; groundwater quality, and sustainability.
- Highlights policy needs for the state's groundwater planning and management.

Successful Completion Criteria: *How will the success of the project be determined from the customer's perspective? Make criteria measurable so there is no doubt as to the project's success. Create a short list.*

- Number of groundwater basins for which annual change in groundwater storage information is developed.
- Number of water resource planning initiatives from which information has been integrated into the Water Plan.
- Number of water managers working with the Water Plan Work Team to help compile and develop the enhanced groundwater content.
- Number of comments received on the groundwater content.
- Positive survey response from members of the Water Plan Advisory Committee, Regional Forums, and Groundwater Caucus, associated with their participation and final deliverables of the Groundwater Content Enhancement effort.
- Number of entities outside the Water Plan using groundwater information generated by the Water Plan.
- Number of citations of the Water Plan groundwater component made in other studies within and outside DWR.

Project Background: *What is the primary motivation for this project? Include a brief high level description of the business area, the current situation, the desired situation, and the gaps that exist. This summary builds on your description in the Project Initiation form.*

As part of the Water Plan Updates 2005 and 2009 processes, Water Plan Advisory Committee members as well as other stakeholders highlighted the need to have access to better information about California's groundwater conditions. For example, the 1-2 million acre-feet of annual groundwater overdraft that is mentioned in both Updates 2005 and 2009 have raised questions for lack of rigorous technical analysis and associated documentation. Water Plan Update 2009, as Update 2005, provided limited quantitative information about groundwater resources in the Water Portfolios developed as part of the Updates. Changes in groundwater storage estimates in Update 2009 do not adequately characterize actual change in storage conditions because these estimates represent net groundwater uses for many areas of the state. As a result, there is a great need to improve our understanding, quantification, and reporting of groundwater resources in California. In areas that lack reliable data to analyze groundwater conditions, the goal to better manage the resource will likely remain unattainable. In the absence of data and analysis, also ineffectual will be the goal of effectively using conjunctive management of groundwater with other water supplies as part of Integrated Regional Water Management (IRWM) programs and projects.

The most current update of California's Groundwater (Bulletin 118, published in 2003) provided minimal quantitative information about California's groundwater conditions for the 10 different hydrologic regions of the state. Quantitative information was limited to basic well statistics, well yields, and supply well water quality. Because of resource and schedule constraints, there was no attempt to compile data adequately and conduct analysis to capture change in groundwater storage or furnish detailed groundwater budgets for any of the groundwater basins or DWR planning areas.

Another issue of concern is how to address long-term sustainability of groundwater from a quantity and a quality perspective. The major impediment, again, is lack of data and funding to undertake the appropriate analysis to assess sustainability of the resource through the development and on-going tracking of a set of relevant sustainability indicators.

Update 2013 will address the issue of lack of groundwater data with the vision of achieving a set of short-term goals, while identifying a broader set of long-term goals to be attained in future Water Plan Updates beyond 2013. The major short-term goals are: quantification of annual change in groundwater storage; identification of data gaps; integration of information among various State, federal, regional, and local planning initiatives; and Case Studies to illustrate utility of groundwater information for regional and local resource management. The most critical long-term goal is to develop detailed water budgets for groundwater basins/planning areas in the state.

Project Scope:

In Scope: <i>List areas and functionality included in project.</i>	Out of Scope: <i>List areas and functionality not included in project.</i>
<ul style="list-style-type: none"> • Integration of groundwater information from various State, federal, regional, and local planning activities; narratives on regional groundwater conditions and management activities; quantification of annual change in groundwater storage; and identification of data gaps. • Case Studies with detailed groundwater budgets for selected groundwater basins. • Inventory and identification of potential for conjunctive management, groundwater banking, and integrated flood management. • Preliminary sustainability indicators for groundwater quantity and quality. 	<ul style="list-style-type: none"> • Additional investigation or data collection. • Updated basin and subbasin groundwater budget type classification; and any new detailed groundwater budgets for planning areas, basins, or subbasins in the state. • Any new detailed analysis of groundwater quality conditions. • Any new detailed analysis of the rate and volume of groundwater extraction by planning area, basin, or subbasin. • Any new detailed evaluation of long-term decline in groundwater storage by planning area, basin, or subbasin. • Evaluation of subsidence potential of a planning area, basin, or subbasin. • An extensive analysis on sustainability indicators for groundwater quantity and quality.

Dependent Projects: *What projects must be underway or completed before this project can be successful?*

Dependent Projects:

- Water Plan Update 2013 Water Supply and Balance Team work, "Change in Groundwater Storage Component."
- California Statewide Groundwater Elevation Monitoring (CASGEM) program created by Groundwater Level Monitoring (SBx7-6).
- Statewide Integrated Flood Planning.
- DWR's California Central Valley Groundwater-Surface Water Model (C2VSIM).
- State Board's Groundwater Ambient Monitoring & Assessment (GAMA) Program.
- USGS Central Valley Hydrologic Model (CVHM), California's Central Valley Groundwater Study.
- Central Valley Regional Water Quality Control Board (CVRWQCB) Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).
- Water Quality Control Plan for the Santa Ana River Basin; Water Quality Control Plan for the San Francisco Bay Basin; Water Quality Control Plan for the Central Coast Region; Water Quality Control Plan: Los Angeles Region; and Water Quality Control Plan for the San Diego Basin.
- DWR's Water Data Library (WDL).

Related Projects:

- Regional partnership program through IRWM (Prop 84, Prop 50).
- FloodSAFE Flood Management Initiative.
- Delta Plan.
- Bay Delta Conservation Plan (BDCP).
- Sacramento Valley Water Management Program (SVWMP).
- Water Transfers Program.
- Drought Program.

Risks: *What characteristics or situations could cause this project to fail? Identify those items which are outside the jurisdiction of project and could result in a "show-stopper" to the project success. Create a short list.*

- Limited data (the amount of information available is generally greatest in northern California and tends to be more limited to the south except the adjudicated basins in the south).
- Political sensitivity associated with the use of and access to groundwater data.
- Delays associated with data identification, acquisition, evaluation, analysis, and synthesis.
- The continued, focused coordination necessary to facilitate the work done by a large group of staff.
- Departure of key staff.
- Limitations in Water Plan funding that may prevent full project implementation.

Assumptions and Constraints: *What assumptions were made in defining project? Are there constraints to the execution of project? List assumptions and constraints.*

Assumptions:

- Existing water laws and regulations are in place.
- Project deliverables are based on the best existing and available data, information, and analyses.
- Water Plan Program Manager views this project as a high priority.
- Water Plan funding is available to dedicate staff in the Headquarter and the Regional Offices to work on the project.
- Staff in the Headquarter and the Regional Offices is available to work on the project on a priority basis for duration of Water Plan Update 2013.
- No turnover in key staff.

Constraints:

- Concurrent demands on the times of key staff by other projects.

This Project Should Have:

Project Management Plan <input type="checkbox"/>	PMP will include: <i>check all that apply</i>	Work Breakdown Structure <input type="checkbox"/>	Communications Plan <input type="checkbox"/>	Procurement Plan <input type="checkbox"/>	Human Resources Plan <input type="checkbox"/>
Quality Management Plan <input type="checkbox"/>	Stakeholder Register <input type="checkbox"/>	Risk Register <input type="checkbox"/>	Project Budget <input type="checkbox"/>	Project Schedule <input type="checkbox"/>	DWR Form 1498 <input type="checkbox"/>

Major High-Level Milestone Targets: *What events measure progress? E.g. Initiation Approved, Analysis Complete.*

Milestone	Target Date
Project objectives, deliverables, and resources needs; roles and responsibilities charts to integrate groundwater information from various State and federal initiatives; and roles and responsibilities charts for project deliverables.	12/2010
Project scope with detailed task breakdown, resources needs, and schedule.	02/2011
Project charter revised as per Public AC feedback and formation of Groundwater Caucus	05/2011
Compilation & integration of groundwater information from various State, federal, regional, and local planning initiatives.	12/2011
Narrative documents of groundwater conditions and management activities in each Regional Report.	12/2011
Documentation of data gaps for the State's groundwater basins.	12/2011
Draft documentation of groundwater data and analysis.	04/2012
Quantification and report on change in groundwater storage for planning areas/groundwater basins.	09/2012
Case Studies including detailed groundwater budget for selected groundwater basins.	03/2013
Inventory and identification of potential for a) conjunctive management of groundwater and other supplies, and b) groundwater banking and integrated flood management.	03/2013
Preliminary sustainability indicators for groundwater quantity and quality.	03/2013
Public Review draft of groundwater data and analysis.	04/2013
Final documentation of groundwater data and analysis for Water Plan Update 2013.	09/2013

Project Core Team Members

Team Member	Phone/E-mail	Role
Abdul Khan		Project manager
Dan McManus		Co-lead
DWR Northern Regional Office staff		Technical support
DWR North Central Regional Office staff		Technical support
DWR Southern Regional Office staff		Technical support
DWR South Central Reg. Office staff		Technical support
DWR Headquarter Office staff		Technical support
DWR Bay-Delta Office staff		Technical support
Other State Agencies' staff		Coordination

Charter Version Number: 4	
Updated By:	Date:
Approved By:	Date: